INDOT

Consultant Services Bulletin

News Bulletin No. 99-1 June 1999

CONSULTANT NEWS BULLETIN 99-1
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APPENDICIES

Personnel News

Congratulations to Ms. Mary Briggs who was recently married. Her new name is Mrs. Mary Maddox.

Mr. Steve Collins accepted a promotion and now works in the Pre-Engineering and Environment Division. Please contact Mr. Richard L. Phillabaum, Landscape Architect, regarding woody revegetation reviews.

Mr. Jeff A. Sowers has accepted a position outside state government. Mr. Matthew Thomas is now the Utilities Unit Supervisor.

E-mail Address List for Design Division

A partial e-mail address list for Design Division Staff has been included in Appendix A. We encourage your use of e-mail with us as a valuable alternative to other types of communication.

Foundation Review Form

The Foundation Review form has been revised to include approval by the geotechnical engineer for the project. See Appendix B. The sequence for routing the form is:

1. The Designer fills out the form.
2. The Designer sends the form to the geotechnical engineer (consultant or Materials and Tests Division, depending on who wrote the geotechnical report) for the project.
3. If the geotechnical engineer approves, the geotechnical engineer signs, dates, and returns the form to the Designer. (If the Designer is a consultant, go to step 4; otherwise go to step 6). If the geotechnical engineer disagrees with the recommendations, the marked-up form is returned to the Designer for resubmission.
4. The Designer submits the form to the project coordinator.
5. The coordinator sends the form to the reviewer.
6. The Reviewer reviews the form and signs & dates the form if he/she concurs. The Reviewer then schedules a meeting with the appropriate Section Manager.
7. If the Section Manager concurs with the recommendations, he/she signs and dates the form.
8. The Reviewer gives the completed form to the coordinator. The Geotechnical Section is to receive a copy of all completed Foundation Review forms.

Implementation: All Foundation Review forms submitted after July 1, 1999 must use the new form and comply with the above instructions.

Practice Pointers

1. When using recurring special provision 701-B-132, the designer must fill in the blank with the appropriate method:

Insert in Blank	for	Method
(a)		Wave Equation Analysis Program
(b)		Dynamic Formula
(c)		Dynamic Pile Load Test
(d)		Static Load Test

   Use the method specified in the Geotechnical Report. If a method is not specified in the report, it is generally acceptable to specify (b) (Dynamic Formula) if the total length of piles in the contract will be less than 1,000 meters. Otherwise, contact the Geotechnical Section regarding the method to specify.

2. Don't use a modified temporary runaround unless you need to; use the temporary runarounds contained in the standard drawings whenever possible.

3. The "gross length" to show on the Title Sheet is the project length; it does not include incidental construction.

4. Use the hard metric values for special subgrade treatment (for example 600mm not 610mm – see 207.06 of the Standard Specifications.)

5. When you receive the final right-of-way plans from Land Acquisition, add the offset distances for right-of-way points. For example, +600/PL would become +600/PL (15.262m) if the existing property line is at 15.262m.

6. Energy absorbing terminals are used with concrete barriers, not with steel guardrail.

7. Excavation for subgrade treatment just applies to cut areas, not fill areas.

8. The Indiana Bat restriction is included among the environmental restrictions in recurring special provision 107-B-040. When this special provision is included in the contract, but the Indiana Bat restriction is not required, it should be crossed out on the special provision.

9. If INDOT committed to the fish spawning restriction in the Fish and Wildlife Review and such restriction is not contained in any of the permits to be included in the contract documents, the Designer must prepare a unique special provision and include it in the special provisions attachments.

10. Upon receipt of the plans and contract proposal book, the Designer is to review the documents and advise the appropriate INDOT employee (reviewer for consultant projects; section manager for in-house projects), in writing, of any necessary revisions or corrections.

11. AASHTO 8.20.1 requires that "at least 1/8 square inch per foot" of reinforcement be provided for shrinkage and temperature stresses. INDOT policy is to use # 13s at 300 mm (# 4s at 12").

Geotechnical Review of Final Check Prints

INDOT has developed a new form for review of the final check prints by the geotechnical engineer. See Appendix C.

The following sequence is to be followed:

1. Designer (on INDOT in-house projects the Designer will give the plans to the appropriate coordinator) sends a copy of the Final Check Prints, geotechnical summary, and the form to the geotechnical engineer (consultant or Geotechnical Section, depending upon who wrote the geotechnical report) for the project. If the Designer is a consultant, the designer will send a copy of the transmittal letter to the appropriate INDOT coordinator.
2. The geotechnical engineer will review the Final Check Prints and geotechnical summary against the geotechnical report and addendums, if any.
3. The geotechnical engineer will complete the form and return it to the Designer (coordinator for in-house projects).
4. The Designer, if necessary, will revise the plans. If revisions are made due to the geotechnical engineer's comments, return to step 1.
5. The Designer will submit the Geotechnical Review of Final Check Prints form when submitting the Tracings.

Implementation: A completed Geotechnical Review of Final Check Prints form must be included for all Tracings submitted for the August, 1999 Ready for Letting.

Clear Roadway Width on Bridges

When a structure is on a multi-lane divided facility with two lanes in each direction, the left shoulder on the bridge is to be 1.7 m. This applies to both 3R and 4R projects.

Interstate Rehabilitation Projects

Effective immediately, the Designer is to invite a representative from each of the cities, counties, and towns affected by the project to the field check. If each city, county, or town is not represented at the meeting, the Designer shall contact and meet with each such LPA. The Public Information Meeting (if a ramp will be closed 7 days or more) is to be held as soon as practicable after the field check (allowing time for revising the maintenance of traffic plans and draft special provisions regarding maintenance of traffic).

Sections 14-2.2(01) and 14-2.02(02) of the Design Manual are revised as follows:

14-2.02 <u>Interstate Rehabilitation Plans</u>

14-2.02(01) Grade Review Submission/Preliminary Field Check

For 4R projects with realignment, a separate Grade Review Submission and a Preliminary Field Check Submission will be required. For information on Grade Review Submission, see Section 14-2.01(01). For 4R projects with no realignment and for 3R projects, only a Preliminary Field Check Submission will be required.

The designer shall invite a representative from each of the Local Public Agencies (LPAs) (cities, counties, and towns) affected by the project to the field check.

The proposed design information for this submittal should be plotted on CADD. The designer is encouraged to add notes on the plans explaining special situations or items which are not readily apparent which may influence the proposed design. These notes must be removed in later submissions. The following sheets and information must be reviewed for Quality Assurance and included with this submission:

14-2.02(02) Information Meeting

If significant additional right-of-way is required, a Public Hearing will be required as noted in Section 14-2.01(04).

In general, a Public Information Meeting will be held if any ramp within the project will be closed for 7 days or more. A Public Information Meeting for an Interstate rehabilitation project will be held as soon as practicable after the field check. If all affected LPAs were not represented at the field check the designer shall contact and meet with each LPA not present to describe the project and the proposed maintenance of traffic plan. The designer shall prepare minutes of each of these meetings. The designer shall revise the plans and draft special provisions regarding maintenance of traffic. After a Public Information meeting is held, the designer will be required to document the concerns raised by the public at the meeting. If a meeting is required, review the following sheets and information for Quality Assurance and include them with this submission.

Slab Overhang for Steel and Concrete Bridges

The slab overhang distance (coping line to centerline of the exterior beam or girder) shall not exceed the least of the following criteria:

a. 0.45 times the interior girder spacing;
b. 0.85 times the
    1. web depth for steel bridges
    2. beam depth minus the bottom flange thickness for concrete I-beams and bulb-tees;
    3. 1500 mm.

The slab overhang for concrete box beams shall not exceed 600 mm from the edge of the box.

Prestressed Concrete Design

1. Use #13 bars for vertical stirrups, wherever possible.

2. Consider placing at least 2 strands in the top flange; it may significantly reduce the need for debonding strands. When strands are placed in the top flange, remember to note on the plans that these strands are to be cut at the center of the beam.

3. The maximum spacing of vertical stirrups in 2 t (where t = thickness of the web).

4. The maximum spacing of horizontal shear stirrups is 500 mm.

5. Space strands at 50 mm (2 inches) in the horizontal and vertical directions.

6. Top strands in concrete box beams should be placed near the sides of the box.

Element Review

Recently, we completed our review of slab bridges. The following reminders regarding design and detailing are made:

1. If the skew is greater than 25° the reinforcing steel is to be placed perpendicular to the centerline. (Note this is a policy change; see 9.7.1.3 of the LRFD, First Edition. Prior policy was 30°.)

2. Check for fatigue. See 8.15.2.2 (Allowable Stress Design) and 8.16.8.3 (Load Factor Design).

Intersection Sight Distance for Divided Highways

Consultant Newsletter 98-1 (dated March 1998) contains an article about intersection sight distance. Generally, the article pertains to 2 lane roads. The 1994 Metric Green Book discusses divided highways with wide medians. The following quotation is on page 712:

In the case of undivided highways or divided highways with narrow medians (the median width is less than the length of the design vehicle), both clearances are performed simultaneously as one operation. For divided highways with wide medians (the median is wider than the length of the design vehicle), the maneuvers are performed as two operations. The stopped vehicle must first have a proper sight distance to depart from a stopped position and cross traffic approaching from the left. The crossing vehicle may then stop and store in the median prior to performing the second operation. This operation requires the necessary sight distance for vehicles approaching on the right to allow the crossing vehicle to depart from the median, to turn left into the crossroad and to accelerate without being overtaken by vehicles approaching from the right.

The analysis outlined above should be used to calculate intersection sight distance for divided highways with wide medians.

Prestressed Concrete Strengths

1. The allowable design compressive strength (f´c) of normal weight concrete at 28 days should be in the following range:

   a. prestressed box beams 5,000 to 7,000 psi (34 MPa – 48 MPa)
   b. prestressed I-beams 5,000 to 7,000 psi (34 MPa – 48 MPa)
   c. prestressed bulb-tee beams 6,000 to 8,000 psi (41 MPa – 55 MPa)

   Use the strength that you need.

2. Normal concrete compressive strength at release of the prestressing force (f´ci) should never exceed 1,000 psi (7 MPa) less than the specified compressive strength at 28 days (f´c); however, it shall not exceed 5,500 psi (38 MPa).

3. Exceptions to the above limits will require the written approval of the Design Division Chief.

4. Items 1a and 1b supercede the range specified in Bridge Design Memo #227. Item 1c supercedes the range specified in item 4 of Bridge Design Memo #248. Item 2 supercedes the value specified in item 4 of Bridge Design Memo #248 for bulb-tees, and establishes a value for box beams and I-beams.

Estimated Unit Price for Concrete Members

The estimated unit price for concrete members are listed below. The designer shall adjust unit prices based on quantity used on the project. The designer shall increase the unit price 20 to 50 percent for small quantities. It is recommended the designer check with a fabricator.

Description	Cost per LFT	Cost per meter
Type I	$ 66.00	$ 215.00
Type II	$ 88.00	$290.00
Type III	$ 102.00	$ 335.00
Type IV	$ 125.00	$ 400.00
Bulb Tee 54”	$ 114.00	$ 375.00
Bulb Tee 66”	$ 120.00	$ 425.00
Bulb Tee 73”	$ 140.00	$ 450.00

The above unit prices also replace those contained in Bridge Design Memorandum No. 252. For post-tensioned members post-tensioning is a separate pay item.

Section 404 Nationwide Permit (3)

Based on a letter from the Louisville Corps of Engineers INDOT will no longer be applying for Section 404 Nationwide Permit (3). This permit is typically used as a maintenance permit. It allows repair, rehabilitation or in some cases replacement of a structure when the footprint is not being substantially changed. No channel changes, realignments or increasing fillslopes into areas of the floodplain is allowed. When this permit is to be implemented the designer should prepare a memorandum to the INDOT project file stating that “This project qualifies for a Nationwide (3) and no formal application will be sent”. The Nationwide (3) status should be noted on the Scope/Environmental Compliance Certification/Permit Application Certification Form. Questions on this issue may be directed to Ms. Carole Korbly Scott at (317)232-7977.

This type of permit does not require the 401 Water Quality Certification.

Maintenance of Traffic on Rural Interstates When Using Crossovers

This topic was addressed in Consultant News Bulletin No. 98-2. Instead of replacing the median shoulder with a 1.5-meter section, it should be replaced with a 1.8-meter section. See Appendix E and section B-B of Standard Drawing No. 611-TCCO-02. The proposed median shoulder for the new pavement section constructed in phase one shall also be 1.8m wide. This shoulder will carry traffic during phase two and the entire 1.8m should remain in place.

This standard drawing is also applicable to non-interstate divided lane facilities.

Maintenance of Traffic During Construction

Temporary runarounds and other maintenance of traffic plans (excluding official detour routes) shall comply with the design criteria contained in Chapter 82 of the Design Manual. The following level 1 elements shall meet these criteria:

	Element	Design Criteria
1.	Design speed	82 - 3.01
2.	Lane width	82 - 3.02
3.	Shoulder width	82 - 3.02
4.	Bridge width	713.04 Standard Specifications
5.	Structural capacity	713.04 Standard Specifications
6.	Horizontal curvature	Figure 82-3A
7.	Superelevation transition length	82 - 3.05 & chapter 43
8a.	Stopping sight distance at horizontal curves	82 - 3.04 Use design speed for the construction zone and 43-4.
8b.	Stopping sight distance at vertical curves	Sag – 82-3.06; crest – 82-3.04 and chapter 44.
9.	Maximum grade	Use the 3R criteria for the design speed for the construction zone, appropriate functional classification, and rural/urban.
10.	Through lane cross slope	Use the 3R criteria for the appropriate functional classification and rural/urban.
11.	Superelevation rate	82-3.05
12.	Vertical clearances	Use the 3R criteria for the appropriate functional classification.
13.	ADA	51-1, where sidewalks exist prior to construction.
14.	Bridge rail safety performance	713.04 Standard Specifications

If the design for the temporary runaround or other maintenance of traffic plan does not meet the above criteria, a design exception must be requested. Follow the procedure established in 40-8.

INDOT reviewers should verify that the above criteria are met as part of the “limited review” of consultant projects.

The Designer must show the design speed for the construction zone on the first sheet of the Maintenance of Traffic Plan. The Designer shall coordinate with the appropriate District Traffic Engineer to establish the design speed for the construction zone.

Implementation: Contracts on the December, 1999 letting and thereafter must comply with the above requirements.

Pavement Drop-offs Adjacent to Traffic

For multi-lane divided highways INDOT design policy no longer allows drop-offs immediately adjacent to lanes open to traffic during construction activities such as shoulder rehabilitation and crossover construction. For two-lane and four-lane undivided highways refer to Design Manual Section 82-4.0 for guidance on construction zone roadside safety.

When developing Maintenance of Traffic Plans the Designer has several options to ensure that any substantial drop-off is located beyond the construction clear zone for lanes open to traffic. The first option is to close the lane adjacent to the drop-off for the entire duration of the shoulder work.

The second option is to provide a shoulder rehabilitation section that can be placed to within 75 mm of the top of pavement elevation by the end of the work period (or within 100 mm if the total depth of the widening section exceeds 350 mm). This option is necessary when the shoulder work is to be done at night so that all of the existing traffic lanes can be kept open during daylight hours. The special pavement section required to fill a shoulder drop-off to within 75 mm of the top before exposure to adjacent traffic shall be obtained from the Pavement Design Engineer. A unique special provision will be required to address the time frames imposed on the contractor for bringing the shoulder paving up to the required grade.

When Interstate mill and resurface projects are constructed under traffic, Phase 1 traffic shall be shifted onto the shoulder so barrels can be placed on the existing pavement surface to barricade the lane where milling occurs. During Phase 2, when the traffic is placed on the newly resurfaced lane and shoulder, the barrels shall be placed on the new resurface rather than in the drop-off area. Although the Phase 2 drop-off may approach 225 mm in depth, the barrels and the area they occupy will provide an adequate safety buffer adjacent to the construction area. Drop-offs in excess of 300 mm on mill and resurface projects shall be evaluated per the criteria in 82-4.01. The evaluation of the need for positive protection shall be documented and placed in the project file.

The Pavement Design Engineer should be consulted whenever traffic is shifted onto an existing shoulder. If pavement cores or as-built plans can not confirm the adequacy of the existing shoulder, a new full depth shoulder section will be required.

Traffic that has been shifted away from a deep drop-off or traffic that is running adjacent to a nominal drop-off are situations that may warrant a reduced speed limit in the construction zone. The function of establishing a lower regulatory speed limit for the work zone is handled by the District Traffic Engineer. The District Traffic Engineer should also be consulted regarding selection of the construction zone design speed. Effective with the December, 1999 letting the construction zone design speed shall be shown on the first sheet of the Maintenance of Traffic Plans.

Urban Added Travel Lanes Projects

Urban added travel lanes projects shall be classified as 4R rather than 3R whenever the work actually consists of increasing the number of through travel lanes. The geometric design criteria from the New Construction / Reconstruction Chapter of the Design Manual will apply. If any level two design criteria, such as clear zone, can not be met suitable documentation should be provided in the project file and in the Design Summary. The addition of a continuous two-way left turn lane to an existing two lane or four lane section may still be categorized as 3R construction.

The misclassification of urban added travel lane projects has occurred most often on local transportation projects. All new 4R projects, both local and state, shall be developed with a full clear zone in accordance with the Design Manual. Some older urban added travel lane projects that were initially developed as 3R projects and switched to 4R may be allowed to continue to final design with a substandard clear zone, provided that acceptable level two documentation has been furnished..

Careful consideration should be given to roadside safety before providing a substandard clear zone on any urban added travel lanes project. For example, it would not be good practice to omit the clear zone and simply provide the minimum 3R obstruction free zone of 0.5 m if this means that utility poles would be located immediately behind the curb of a new 4R facility in a suburban area. Based on the introduction to Section 55-5.02 an obstruction free zone equivalent to the clear zone should be provided if practical. Consequently for 4R projects with barrier curbs, Designers should provide a 3.0 m obstruction free zone if the required clear zone cannot be provided. No obstructions or hazards other than non-recoverable sideslopes and ditches will be permitted within this obstruction free zone.

When the full clear zone is not provided documentation shall be prepared in accordance with 40-8.02(02), with detailed discussion of the merits of R/W cost savings versus safety considerations. The level two documentation must be conclusive with respect to the rationale for the level two exception and if a meeting was held regarding the exception the date and the attendees should be referenced. Level two documentation is to be submitted at the preliminary field check stage and should be briefly summarized in the Design Summary.

NHI Course # 13055, Safety Inspection of In-Service Bridges

The INDOT Roadway Management Division has arranged to have this two week course presented in Indianapolis from October 18th through October 29th Michael Baker Jr. & Associates will be providing the training. There will be some seats available to consultants at a cost of $500 per participant. Those interested in signing up for the training should contact Mr. Mark Niehoff at (317)232-5190. Questions about the scope of the training should be directed to Mr. Jaffar Golkhajeh at (317)232-5453.

Oversize Box Culverts (Megaboxes)

Oversize box culverts are now routinely being recommended by the INDOT Hydraulics Unit. Megaboxes and other oversize box culverts are available from several local suppliers. Product information may be obtained from Hydro Conduit Corp. (317-241-8237) regarding the Megabox or from Independent Concrete Pipe Co. (317-262-4920) regarding the Colossal Box.

The recommended layout method for oversize box culverts, as well as regular box culverts, is to extend the culvert to the point where a 2:1 roadway sideslope intercepts the stream flow line. Wingwalls are generally not recommended. INDOT policy requires that a 2:1 sideslope at the end of a box culvert be protected with guardrail or be located beyond the clear zone.

When the INDOT Hydraulics Unit recommends that wingwalls be provided at the ends of a box culvert, they shall be designed and detailed as cast-in-place wingwalls. At this time there is no commercially available system for precast wingwalls for box culverts and consequently INDOT does not have a recurring special provision for precast wingwalls.

Any designer wishing to submit a box culvert design incorporating precast wingwalls must provide evidence that the system is non-proprietary (ie. more than one manufacturer exists) and must develop a unique special provision to specify the construction requirements and method of payment for the precast wingwalls.

The hydraulic recommendations letter will usually indicate when a three-sided culvert with base slab is an acceptable alternate to an oversize box. Designers should consult with the INDOT Hydraulics Unit for guidance as to whether the two structure types are interchangeable for their specific project. A cost comparison should be used in making the final structure selection.

Oversize box culverts should be laid out so that the total structure length works out to be a multiple of the box segment length for the given box size. There is no need to add a tolerance for the joints between segments when determining the total structure length. The available segment sizes and lengths can be found in the following table.

OVERSIZE BOX CULVERTS (Tons per ft./Segment Length)

RISE	4’	5’	6’	7’	8’
SPAN					
14’	3.15 / 6’	3.30 / 6’	3.45 / 6’	3.60 / 6’	3.75 / 5’
16’	3.45 / 6’	3.60 / 6’	3.75 / 5’	3.90 / 5’	4.05 / 5’
18’	3.75 / 5’	3.90 / 5’	4.05 / 5’	4.20 / 5’	4.35 / 5’
20’	4.05 / 5’	4.20 / 5’	4.35 / 5’	4.50 / 4’	4.65 / 4’

A unique special provision regarding design requirements should be provided by the designer until the ASTM and AASHTO Specifications are updated to include the oversize box culverts.

Applications for Section 401 Water Quality Certification

The Department of Environmental Management is updating their data and record management systems for the Section 401 Water Quality Certification (WQC) Program. In an attempt to better organize and consolidate data collected and stored, they have requested that we refer to the following guidance when submitting applications for Section 401 WQC.

All applications must include the following information:

1. Type of waterbody impacted. Description of waterbody as indicated on the list below.

2. Name of Waterbody. Generally accepted name, if none exists, enter "Un-named".

3. Project type. Indicated whether the project is a replacement, rehabilitation or new bridge.

4. Length of channel shaping. Length of section of channel modified by widening, bank shaping, or any other activity which alters the width, but not the actual path of the original channel. Include upstream and downstream shaping.

5. Length of channel relocation. Length of section of channel relocated from its existing path or course.

6. Upstream/downstream bank clearing. Length of land clearing for access, right-of-way, etc. adjacent to the waterbody both upstream and downstream of the bridge.

7. Area of rip-rap/armoring. Area of rip-rap coverage or seawall. Specify both above and below the Ordinary High Water Mark (OHWM).

8. Sediment trap. Indicate if part of planned project.

9. Temporary crossing. Indicate if part of planned project.

10. Cofferdam/sheet piling/de-watering device. Indicate if part of planned project.

11. Type of wetland. Indicate Cowardin classification for each type of wetland affected by project as listed:
    *PEM – Palustrine Emergent Wetland
    *PSS – Palustrine Scrub Shrub Wetland
    *PFO – Palustrine Forested Wetland
    *Riverine – any flowing or intermittent system
    *Lacustrine – lacks minimum of 30% area coverage with trees, shrubs or emergent vegetation; deepest part exceeds 2m (6.6 ft) in depth.

12. Total area. Total acres of each corresponding type of wetland present on site (within right-of-way boundaries) before proposed impacts.

13. Type of impact. Fill or Excavation for each corresponding wetland type (below OHWM).

14. Proposed impact. Acres of impacts proposed for each corresponding wetland type.

EXAMPLE:

Type of Wetland	Total Area	Type of Impact	Proposed Impact
Riverine	.5 a	fill	.1 a
Riverine	.5 a	excavation	.1 a
PEM	.1 a	fill	0.05 a

Waterbody Types:

Borrow Pit	Canal	Ephemeral Stream
Lake	Legal Drain	Mine Pit
Pond	Reservoir	River
Stream	Wetland	

Encasement of Steel H Piles

Generally, Steel H Piles are to be encased in concrete to a depth of 600 mm below the flow line.

Design Division E-mail Addresses

Chief

KLIKA, PHELPS	232-5338	PKLIKA@indot.state.in.us

Consultant Services Section

CLANTON, JEFF	232-4198	JCLANTON@indot.state.in.us
CAPLINGER, KATHY	232-5162	KCAPLINGER@indot.state.in.us
GORMAN, CINDY	232-5339	CGORMAN@indot.state.in.us
MACDONALD, KAREN	232-6643	KMACDONALD@indot.state.in.us
MADDOX, MARY	232-5341	MMADDOX@indot.state.in.us
MONK, LAURA	232-0679	LMONK@indot.state.in.us
MYERS, JOEL	232-0011	JMYERS@indot.state.in.us
STAGGS, JOAN	232-5199	JSTAGGS@indot.state.in.us
STRAIN, NANCY	232-0771	NSTRAIN@indot.state.in.us

Plan Development Sections

PATEL, HASMUKH	232-5152	HPATEL@indot.state.in.us
SCHMIDT, PAUL	233-2066	PSCHMIDT@indot3.indot.state.in.us
SMUTZER, KATHERINE	233-2074	SMUTZER@indot3.indot.state.in.us
VEKSLER, ELENA	233-2073	VEKSLER@indot3.indot.state.in.us
WRIGHT, JOHN	232-5147	WRIGHT@indot3.indot.state.in.us
JORDAN, JOHN	232-0682	JJORDAN@indot.state.in.us
BROWN, HENRY	232-5153	HBROWN@ indot3.indot.state.in.us
GEORGE, SHERLY	232-5346	SGEORGE@indot3.indot.state.in.us
GILBERT, SUSAN	233-2081	GILBERT@indot3.indot.state.in.us
KLEVITSKY, GREG	233-5568	KLEVITSKY@indot3.indot.state.in.us
LUTTERBACH, JIM	232-5355	LUTTERBACH@indot3.indot.state.in.us
MARTIN, CHRIS	233-2083	MARTIN@ indot3.indot.state.in.us
OROSZ, KEN	233-2077	OROSZ@indot3.indot.state.in.us
REILMAN, JIM	232-6143	REILMAN@ indot3.indot.state.in.us
SHAH, NIRU	232-5158	SHAH@indot3.indot.state.in.us
VOLLMER, MIKE		VOLLMER@indot3.indot.state.in.us
WILSON, ETHAN	233-2082	WILSON@indot3.indot.state.in.us
HAMMAN, MARY JO	232-5159	MHAMMAN@indot.state.in.us
BOTANI, OSMAN	233-2088	BOTANI@indot3.indot.state.in.us
CAPLINGER, TOM	232-5354	CAPLINGER@indot3.indot.state.in.us
CASLER, LISA	233-2086	CASLER@indot3.indot.state.in.us
CHANDLER, SCOTT	233-2085	CHANDLER@indot3.indot.state.in.us
FELLOWS, DEREK	233-2089	FELLOWS@indot3.indot.state.in.us
HOY, MIKE	233-2084	HOY@indot3.indot.state.in.us
REARICK, ANN	232-5156	REARICK@indot3.indot.state.in.us
STRAIN, RANDY	232-3339	strain@indot3.indot.state.in.us
SEEMAN, TOM	232-5336	TSEEMAN@indot.state.in.us
ABBASI, FIKE	233-2055	ABBASI@indot3.indot.state.in.us
BAIG, SHAKEEL	232-5217	BAIG@indot3.indot.state.in.us
BROSMAN, LES	233-2059	BROSMAN@indot3.indot.state.in.us
BUTCHER, TRISHA	233-2054	BUTCHER@indot3.indot.state.in.us

Design Division E-mail Addresses Cont'd

HAIDER, ZUBAIR	233-2056	HAIDER@indot3.indot.state.in.us
SMITH, WES	233-2058	SMITH@indot3.indot.state.in.us
STABLER, PEGGI	233-2053	STABLER@indot3.indot.state.in.us
ZAFAR, BRIAN	233-2068	ZAFAR@indot3.indot.state.in.us

Specialty Projects Group

POTURALSKI, JIM	232-5226	JPOTURALSKI@indot.state.in.us
CARLETON, GREG	232-6777	GCARLETON@indot.state.in.us
DOOLEY, HOLLY	233-3736	HDOOLEY@indot.state.in.us
HANZA, ALFREDO	232-5236	AHANZA@indot.state.in.us
LEWIS, ED	233-3705	LEWIS@indot3.indot.state.in.us
LOUIE, DALE	232-5242	DLOUIE@indot.state.in.us
MAJDI, HAMID	233-3525	MAJDI@indot3.indot.state.in.us
MUENCH, TIM	232-5245	MUENCH@indot3.indot.state.in.us
PATEL, PANKAJ	232-5227	PPATEL@indot3.indot.state.in.us
PATEL, PRAKASH	233-3702	PRPATEL@indot3.indot.state.in.us
RICHARDS, GREG	232-5235	RICHARDS@indot3.indot.state.in.us
SNYDER, GEORGE	232-5163	GSNYDER@indot.state.in.us
STRANGE, SHAWN	233-3526	STRANGE@indot3.indot.state.in.us
TANG, ED	232-5230	ETANG@indot.state.in.us
TERRY, STEVE	233-3646	TERRY@indot3.indot.state.in.us
WAMPLER, DANNY	233-3696	DWAMPLER@indot.state.in.us

Engineering Services Section

HULL, STEVE	232-5340	SHULL@indot.state.in.us
DOUGHERTY, MERRIL	232-6776	MDOUGHERTY@indot.state.in.us
SCHMIDT, BILL	232-5309	BSCHMIDT@indot.state.in.us
SHAW, LARRY	233-3701	LSHAW@indot.state.in.us
THOMAS, MATT	233-3700	MTHOMAS@indot.state.in.us

Records Unit

MILLER, CHARLES	232-5344	CMILLER@indot.state.in.us

Foundation Review

RE: Bridge Carrying _____ over _____
Structure No.:_____
Construction Project No.:_____
Des. No. _____

It is recommended that the following foundation(s) be used for the above structure:

Support	**1**	**2**	**3**	**4**
Type*				
Size				
Design Load				
Ultimate Load				
Minimum Pile Tip Elevation (Ft. or m.)				
Use Pile Tip (Y or N)				
Bottom of Footing Elevation				
Top of Footing Elevation				

* If the structure is on piles, attach the "Pile Loading for Geotechnical Testing" chart.

Other:_____
_____
_____

Respectfully submitted,

Date:_____ _____
Name of Designer
Name of Consulting Firm (If applicable)

Date:_____ Approved by:_____
Geotechnical Engineer

Date:_____ Reviewed by:_____
INDOT Project Manager
(Reviewer for in-house projects)

Date:_____ Reviewed by:_____
INDOT Development Section Manager

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Geotechnical Review of Final Check Prints

Route: _____

Over: _____

Des. No.(s): _____

Project No.: _____

Date of Geotechnical Report: _____

Date of addendum(s) to Geotechnical Report: _____

I have reviewed the Final Check Prints and the geotechnical summary for the above project.

☐ The Final Check Prints and special provisions are consistent with the Geotechnical Report and any addendums. No changes are needed.

☐ The Final Check Prints and special provisions are not consistent with the Geotechnical Report and any addendums. The following items need to be addressed:

_____
_____
_____
_____
_____

☐ The geotechnical summary submitted by the designer is satisfactory to include in the Contract Proposal book.

☐ The geotechnical summary submitted by the designer is not satisfactory because:

_____
_____
_____

_____
Signature of Geotechnical Engineer

_____
Name of Consulting Firm or INDOT

_____
Date

JEJ:ps
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QUALITY ASSURANCE FORM

Consultant is responsible for filling out both sections.

Consultant:_____

Project Description:_____
_____
_____

Project #:_____ Design #:_____

Submittal:_____

This submittal has been reviewed in regards to consistency, completeness and overall content prior to submittal by:

Project Manager:_____

Telephone Number:_____ Date:_____

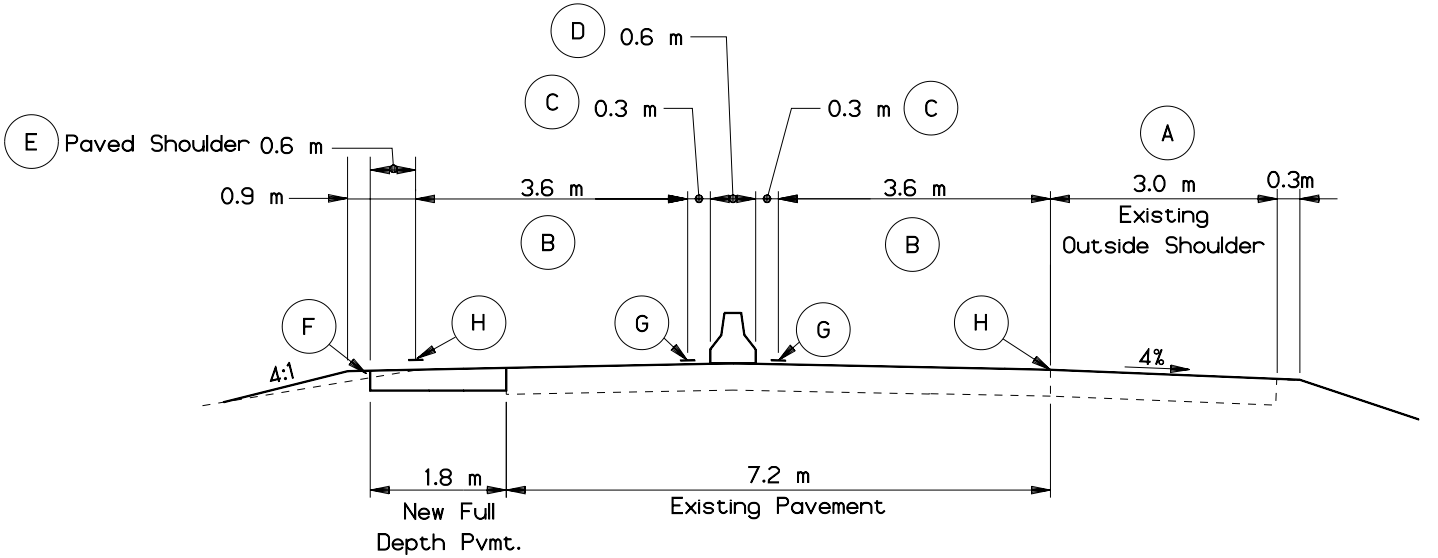
CONSULTANT'S REVIEWERS COMPLETE THIS SECTION (See Note)

The above submittal has been reviewed for quality in accordance with the Quality Assurance Procedures.

Items(s):_____ Designer:_____ Reviewer:_____
Items(s):_____ Designer:_____ Reviewer:_____
Items(s):_____ Designer:_____ Reviewer:_____
Items(s):_____ Designer:_____ Reviewer:_____
Items(s):_____ Designer:_____ Reviewer:_____
Items(s):_____ Designer:_____ Reviewer:_____

Remarks:_____
_____
_____
_____

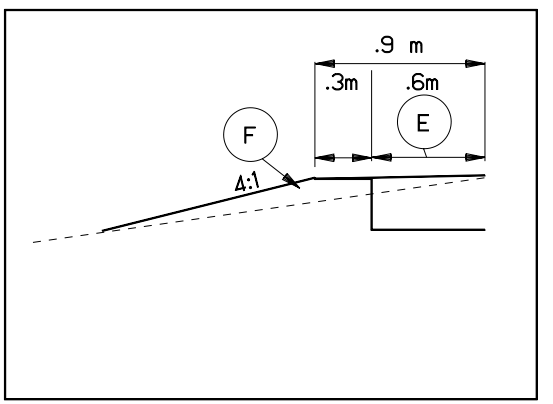
NOTE: The consultant is responsible for checking all of their work as outlined in Chapter 14 of the Design Manual. The item numbers to be inserted above are the item numbers from the appropriate section of Chapter 14.



MAINTENANCE OF TRAFFIC ON RURAL INTERSTATES WHEN USING CROSSOVERS

NOTES:

- (A) Existing outside shoulder (paved)
- (B) Travel lane
- (C) Offset from temporary concrete medium barrier for placement of temporary pavement markings (solid yellow 100 mm)
- (D) Temporary concrete median barrier
- (E) Paved shoulder
- (F) Compacted aggregate or asphalt milling
- (G) Temporary pavement marking solid yellow 100 mm
- (H) Temporary pavement marking solid white 100 mm



AMB/9-17-98